IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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| Applicant: | Shimizu | Examiner: | Hurley, Kevin |
| Serial No.: | 10/618,476 | Group Art Unit: | 3611 |
| Filed: | July 11, 2003 | Docket No.: | 08373.0305US01 |
| Title: | ELECTRIC POWER STEERING APPARATUS | | |

CERTIFICATE UNDER 37 CFR 1.8:
I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, with sufficient postage, in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on April 8, 2005.

By: _____
Name: Antonette Peters

## RESPONSE TO OFFICIAL ACTION

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This communication is in response to the Official Action dated October 14, 2004.

The Examiner rejected claim 2 under 35 U.S.C. 103 as being obvious on consideration of Kurokawa et al. in view of Ballard.

Kurokawa discloses an electric power steering device. Kurokawa does not disclose a worm having a single thread. Ballard discloses a self-locking mechanical steering helm on a boat. A worm shaft 14 extends outwardly in one direction for mounting the boat steering wheel on the free end 16 thereof. Cable guides 18 extend in another direction connecting to a steerable drive unit in a conventional fashion. Cables 19 are mounted onto and about a cable sprocket 34, which turns in unison with worm gear 28. Thus, torque from the boat steering wheel is transferred though the worm assembly to the cables for steering the drive unit. The invention of Ballard is that the worm assembly provides a self-locking feature so that torque from the drive unit is not transferred back through the worm assembly to the steering wheel. Thus, even though torque is created at the drive unit, the steering or course of the boat does not change due to that torque.

The problem with prior art mechanical helms is that they are prereeling and susceptible to steering torque and back driving. The Ballard invention solves that problem. As indicated at column 1, lines 34-36, "The same problem also exists in conventional variations of the above-described mechanical helm, such as drum, rotary, or rock and pinion helm systems." The Ballard invention does not solve the problem in these conventional variations. In particular, the problem is not solved in rock and pinion helm systems. Furthermore, the rock and pinion steering system of claim 2 includes an electric motor for producing steering assist torque. The worm gear mechanism transmits the steering assist torque to the steering system . There is no comparable problem in the electric power steering apparatus in claim 2 as that solved by the Ballard invention, namely, back steering due to the drive unit. Thus, there is no motivation provided in the Ballard disclosure to use the worm assembly of the mechanical steering helm for a boat in the electric power steering apparatus of claim 2 where the worm mechanism is in the mechanism transferring steering assist torque. The disclosure of Ballard in view of the disclosure of Kurokawa are not properly viewed without hindsight to derive the structure of claim 2.

Claim 1 is allowed. Claims 3 and 4 are allowable.

In view of the above, it is submitted that the application is in condition for allowance. Reconsideration is requested. Allowance of all pending claims at an early date is solicited.

Respectfully submitted,

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Dated: April 8, 2005

By _____
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